

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 841 (1983): Steel Hammers [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SPECIFICATION FOR
STEEL HAMMERS
(Second Revision)

1. Scope — Covers the requirements for steel hammers.

2. Types

2.1 The steel hammers shall be of the following types :

- a) Engineer's ball pein hammer,
- b) Engineer's cross pein hammer,
- c) Double face sledge hammer,
- d) Cross pein sledge hammer,
- e) Straight pein sledge hammer,
- f) Stone breaker's hammer (oval eye),
- g) Stone breaker's hammer (round eye),
- h) Boiler scaling hammer,
- j) Spiking and keying hammer,
- k) Spiking and keying hammer (alternate design),
- m) Spiking hammer, and
- n) Keying hammer.

3. Material

3.1 The hammer heads shall be manufactured from fully killed forging quality steel meeting the requirements of hardness and tests laid down in 4 and 15. Suitable examples of steel are grade T 50, T 55, T 65 or T 70 of schedule VI of IS : 1570-1961 ' Schedules for wrought steel for general engineering practices '.

4. Hardness

4.1 The hammer heads shall be hardened and tempered on the striking faces and peins only. The striking faces and peins shall have hardness between 46 to 58 HRC.

4.1.1 For hammers up to and including nominal mass 1 500 g the hardened zone of the striking faces, when measured from any point on that face, shall extend to a minimum depth of 3 millimetres. For hammers with nominal mass more than 1 500 g, it shall be minimum 6 millimetres. Hardness measured shall be within the values specified in 4.1. For illustration see Fig. 1.

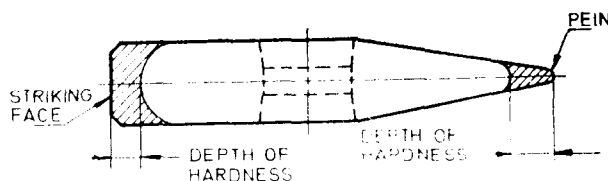


FIG. 1

In no case the above hardness shall extend to any part of the neck or where there is no neck, more than half way to the nearest point of the eye. The hardness measured near the eye portion shall not exceed 32 HRC.

5. Shapes and Dimensions

5.1 Hammer heads shall be provided with an eye which shall be of either of the shapes shown in Table I. Eye dimensions of hammer heads of nominal mass up to and including 1 000 g, shall be as given in Table I. For hammer heads of nominal mass more than 1 000 g, the dimensions of eye shall be as specified in respective tables.

5.1.1 Stone breaker's hammer head may also be provided with round eye in accordance with Table 6.

5.2 The shapes and dimensions of hammer heads shall be as given in Tables 2 to 11.

6. Mass

6.1 The mass of the hammer heads shall be as given in respective tables subject to a tolerance of ± 7.5 percent.

7. Handles

7.1 Steel hammers shall be supplied complete with handles unless it is specifically mentioned in the order that only hammer heads are required.

7.2 In case steel hammers are required to be supplied with handles, the handles shall conform to IS : 4953-1973 ' Specification for wooden handles for hand hammers (*first revision*) '.

8. Designation

8.1 The hammers shall be designated by :

- a) commonly used name,
- b) nominal mass, and
- c) number of this standard.

Example :

A double face sledge hammer of nominal mass 2 500 g shall be designated as :
Double face sledge hammer 2 500 IS : 841

9. Manufacture, Workmanship and Finish

9.1 The hammer heads shall be cleanly forged and/or stamped in one piece. These shall be well-shaped and reasonably free from flaws, seams or other defects. All fins or flaws produced in forging or stamping shall be dressed to a reasonably level surface.

9.2 The eye shall be well-shaped and reasonably central, and shall be drifted from both sides to leave a central waist.

9.3 The striking faces and peins of hammer heads shall be finished to a reasonably smooth, bright surface and all sharp edges shall be removed. The striking faces may be slightly convexed and chamfered. The peins shall be well-shaped and finished. Where any other finish is required, this shall be clearly stated by the purchaser in enquiry and order.

10. Preservative Treatment

10.1 The hammer heads shall be varnished all over or coated with an approved anti-corrosive paint, except the ground portion, which shall be left varnished.

11. Supply of Hammers

11.1 General requirements relating to the supply of hammers shall conform to IS : 1387-1967 ' General requirements for the supply of metallurgical materials (*first revision*) '.

12. Marking

12.1 Each hammer head shall be clearly and legibly stamped with its nominal mass and the supplier's name, initials and/or trade-mark. Year of manufacture may also be marked when specifically required by the purchaser.

12.2 *ISI Certification Marking* — Details available with the Indian Standards Institution.

13. Packing

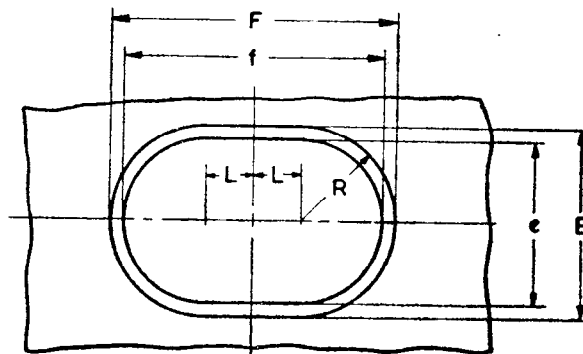
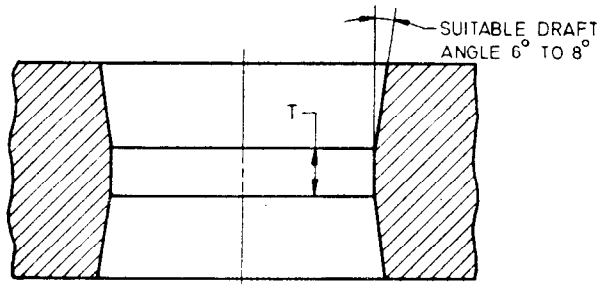
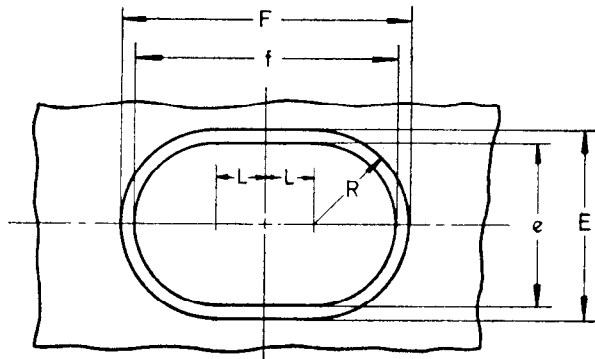
13.1 The hammer heads shall be securely packed in suitable packing cases of size convenient for handling in transit or they shall be bundled and secured suitably with wire, as may be specified by the purchaser. Each type and size of hammer head shall be kept separate when packed and no package shall contain more than one variety of hammer heads.

14. Sampling

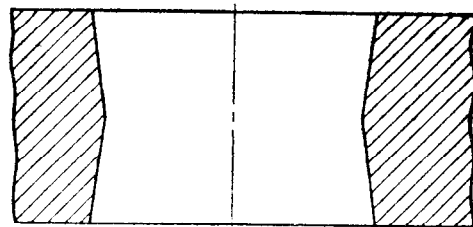
14.1 In order to ascertain the conformity of the lot, the procedure for sampling inspection as given in IS : 2500 (Part 1)-1973 ' Sampling inspection tables : Part I Inspection by attributes and by count of defects (*first revision*) ' shall be followed. The inspection level and AQL for various characteristics shall be according to **14.2**.

TABLE 1 OVAL EYE PROPORTIONS FOR STEEL HAMMERS
(Clause 5.1)

All dimensions in millimetres.



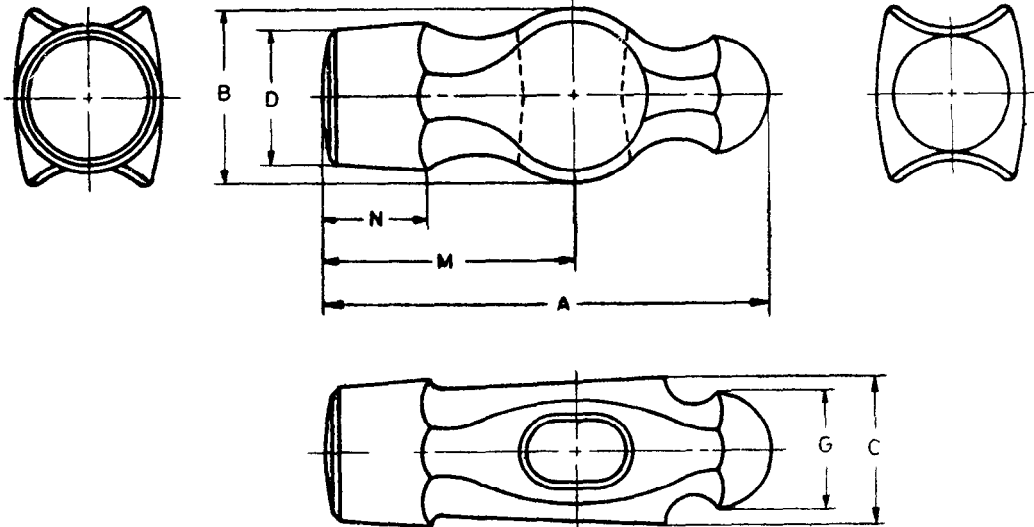
- $F = 1.5 E$ (Nominal)
- $f = 0.85 E$ (Nominal)
- $e = 0.8 E$ (Nominal)
- $L = 0.25 E$ (Nominal)
- $R = 0.5 E$ (Nominal)



Nominal Mass g	e	f	L	R	T (Approx)
100	8.0	13	2.5	4.0	3
200	12.0	19	3.5	6.0	3
300	12.0	22	5.0	6.0	5
500	12.0	22	5.0	6.0	5
600	16.5	28	5.75	8.25	8
800	16.5	28	5.75	8.25	8
1 000	17.0	32	7.5	8.5	8

TABLE 2 DIMENSIONS FOR ENGINEER'S BALL PEIN HAMMERS
(Clause 5.2)

All dimensions in millimetres.

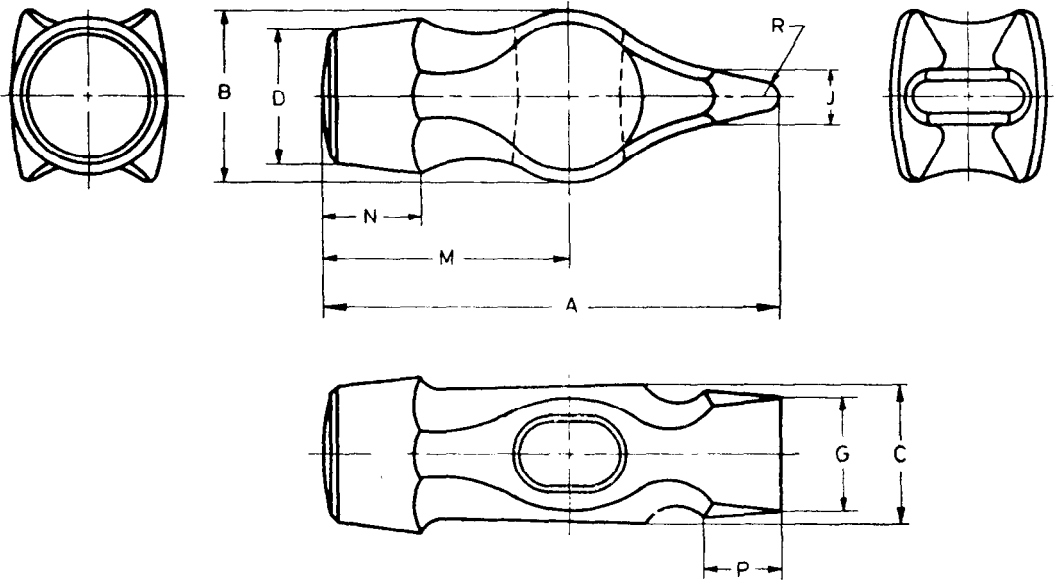


Nominal Mass g	A	B	C	D	G	M	N
100	65	25	20	20	15	35	15
200	80	30	25	25	20	48	20
300	90	35	30	25	25	50	20
500	105	40	32	30	25	60	22
600	110	45	35	35	30	65	25
800	120	50	35	40	32	68	25
1 000	125	50	40	40	35	70	25

Note — For details of eye see Table 1.

TABLE 3 DIMENSIONS FOR ENGINEER'S CROSS PEIN HAMMERS
(Clause 5.2)

All dimensions in millimetres.

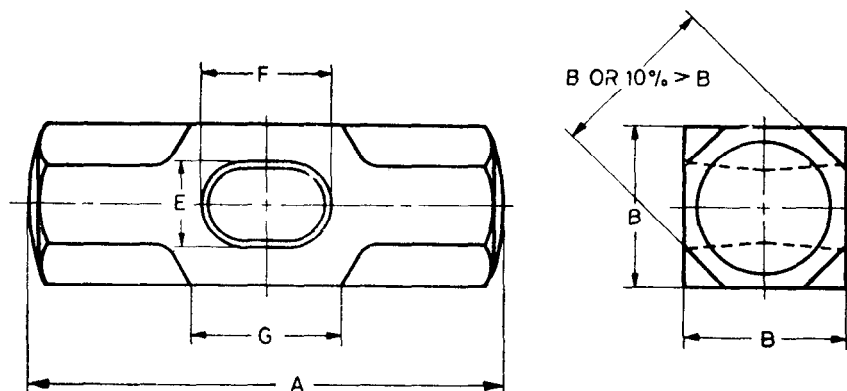


Nominal Mass g	A	B	C	D	G	J	M	N	P	R
200	75	30	25	24	20	10	45	20	12	1'6
300	95	35	25	30	22	12	50	20	16	1'6
500	105	40	32	35	25	15	60	22	20	3'2
600	115	45	35	35	30	15	60	25	20	4'0
800	120	50	40	40	32	18	65	25	20	4'0
1 000	130	50	40	40	35	18	70	25	22	4'0

Note — For details of eye see Table 1.

TABLE 4 DIMENSIONS FOR DOUBLE FACE SLEDGE HAMMERS
(Clause 5.2)

All dimensions in millimetres.



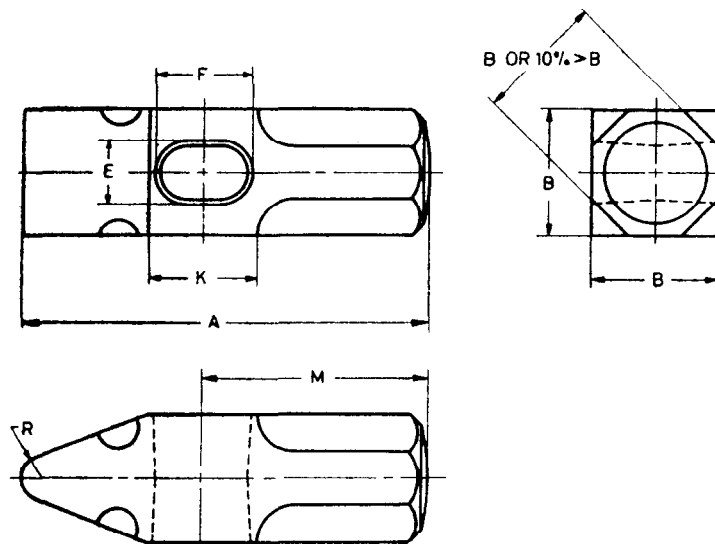
Nominal Mass g (kg)	A	E	F	G	B
500 (0.5)	80	15	25	25	32
1 000 (1.0)	105	20	32	35	40
1 500 (1.5)	128	20	35	40	45
2 000 (2.0)	135	25	35	40	50
2 500 (2.5)	155	25	35	45	52
3 000 (3.0)	160	25	45	47	55
3 500 (3.5)	170	25	45	50	55
4 000 (4.0)	170	30	45	50	60
4 500 (4.5)	180	30	45	52	62
5 000 (5.0)	190	30	45	52	65
5 500 (5.5)	200	30	45	52	65
6 000 (6.0)	210	30	45	52	68
6 500 (6.5)	218	30	50	60	70
7 500 (7.5)	225	30	50	62	72
8 000 (8.0)	230	30	50	62	72
8 500 (8.5)	235	30	50	62	72
9 500 (9.5)	235	30	50	65	80
10 000 (10.0)	240	30	50	65	80
10 500 (10.5)	245	30	50	65	80

Note — For details of eye see Table 1.

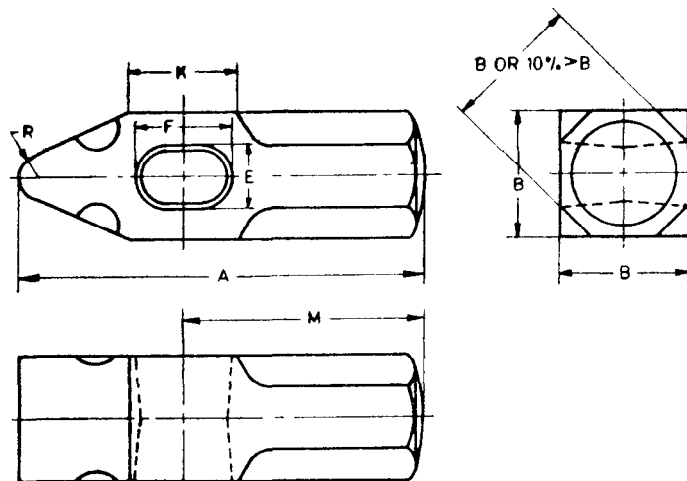
TABLE 5 DIMENSIONS FOR CROSS PEIN SLEDGE HAMMERS AND STRAIGHT PEIN SLEDGE HAMMERS

(Clause 5.2)

All dimensions in millimetres.



CROSS PEIN SLEDGE HAMMER



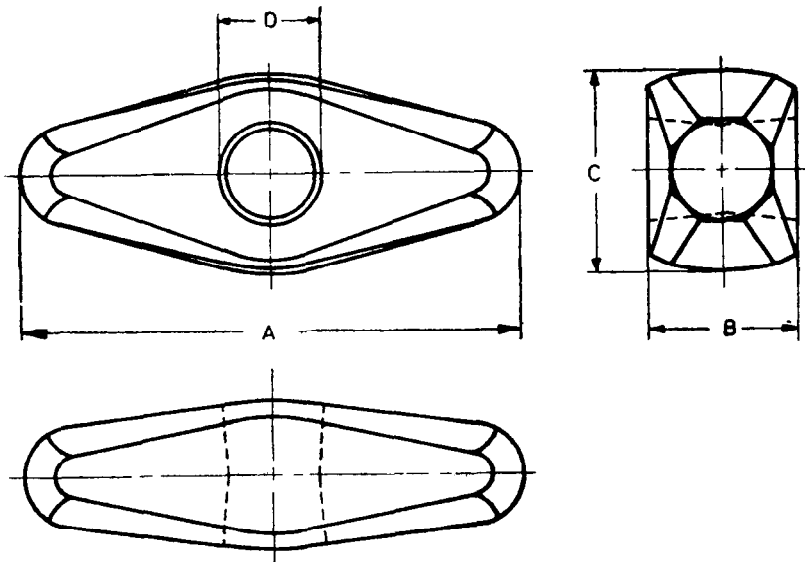
STRAIGHT PEIN SLEDGE HAMMER

Nominal Mass g (kg)	A	B	M	K	R	E	F
500 (0.5)	95	30	55	25	6	15	25
1 000 (1.0)	125	40	65	35	6	20	35
1 500 (1.5)	135	40	75	35	8	20	35
2 000 (2.0)	145	45	75	35	10	25	35
2 500 (2.5)	155	50	85	50	10	25	35
3 000 (3.0)	160	55	90	50	15	25	45
3 500 (3.5)	175	55	100	55	15	25	45
4 000 (4.0)	185	60	105	55	15	30	45
5 000 (5.0)	195	60	110	60	20	30	45
6 000 (6.0)	220	70	120	65	20	30	45
8 000 (8.0)	225	75	130	75	20	30	50

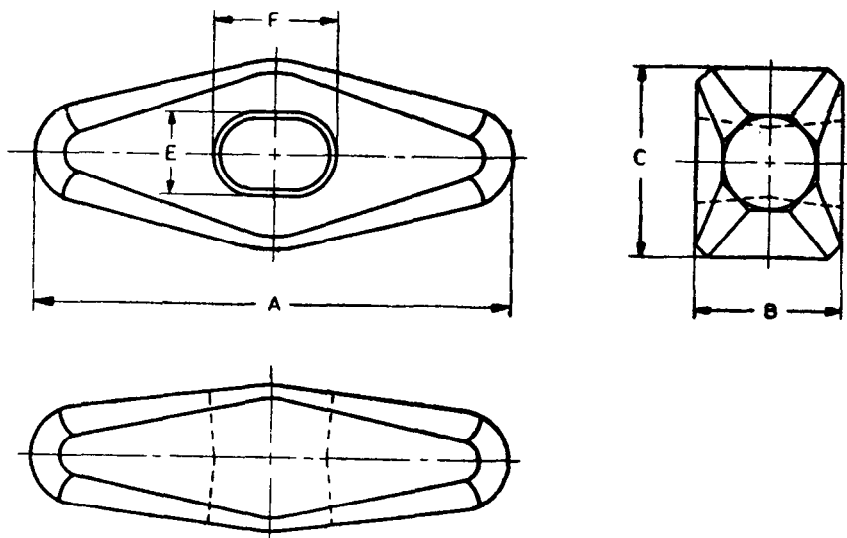
Note — For details of eye see Table 1.

TABLE 6 DIMENSIONS FOR STONE BREAKER'S HAMMERS
(Clauses 5.1.1 and 5.2)

All dimensions in millimetres.



WITH ROUND EYE



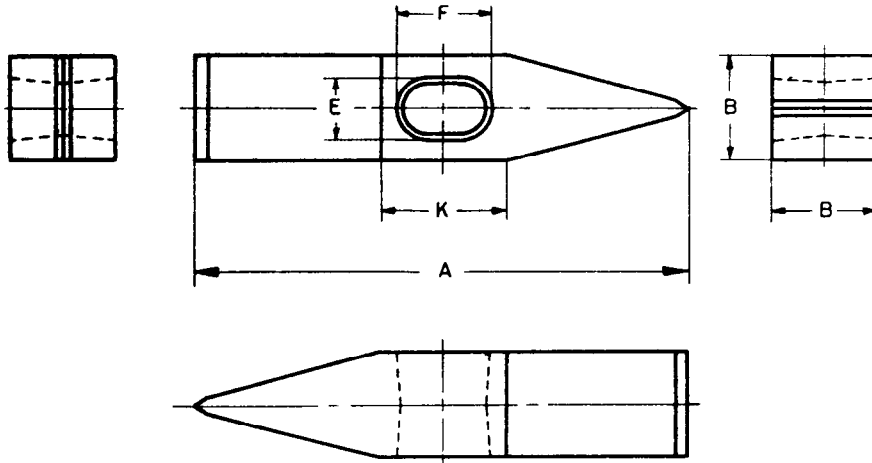
WITH OVAL EYE

Nominal Mass g	A	B	C	D	E	F
500	100	30	40	22	15	25
800	110	40	40	25	20	30
1 000	130	40	55	25	20	35

Note — For details of eye see Table 1.

TABLE 7 DIMENSIONS FOR BOILER SCALING HAMMERS
(Clause 5.2)

All dimensions in millimetres.

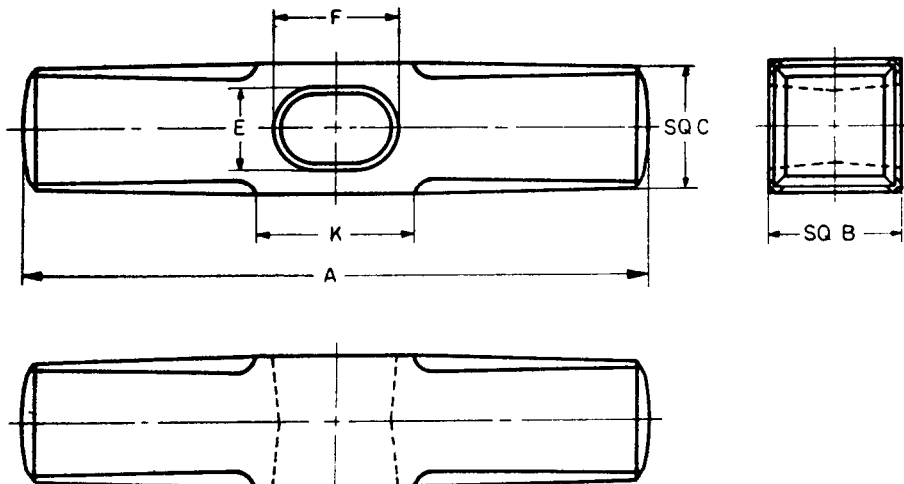


Nominal Mass g	A	B	K	E	F
500	130	30	30	15	25
800	155	35	40	20	30

Note — For details of eye see Table 1.

TABLE 8 DIMENSIONS FOR SPIKING AND KEYING HAMMERS
(Clause 5.2)

All dimensions in millimetres.



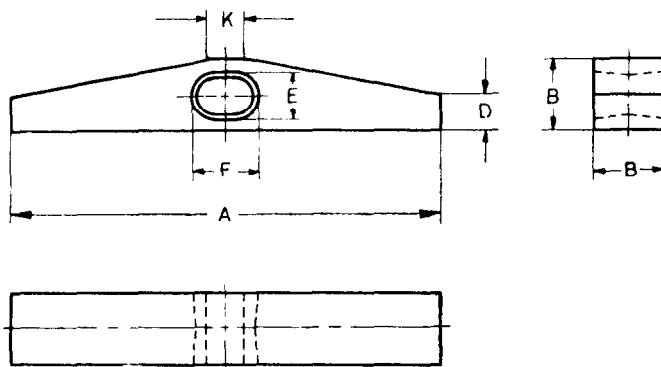
Nominal Mass g (kg)	A	B	C	K	E	F
1 500 (1.5)	170	35	30	40	20	35
3 000 (3.0)	260	40	40	65	25	45

Note — For details of eye see Table 1.

**TABLE 9 DIMENSIONS FOR SPIKING AND KEYING HAMMERS
(ALTERNATE DESIGN)**

(Clause 5.2)

All dimensions in millimetres.



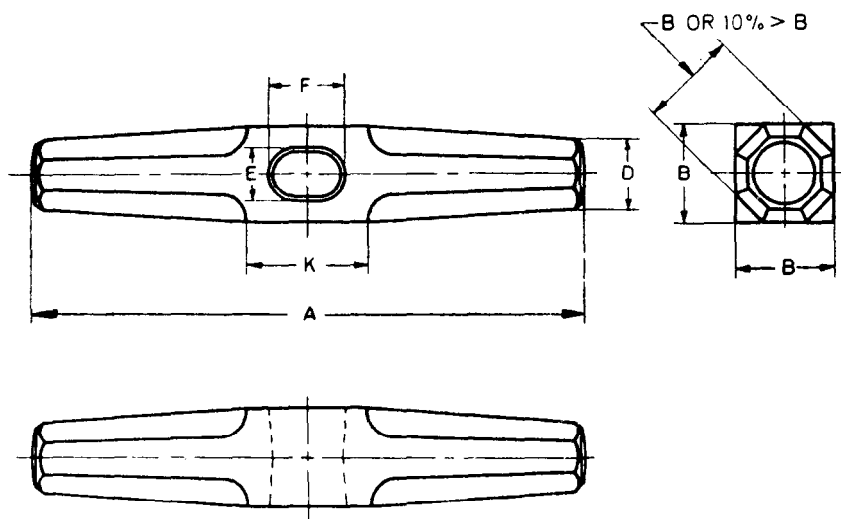
Nominal Mass g (kg)	A	B	D	K	E	F
2 000 (2.0)	230	40	20	20	25	35

Note — For details of eye see Table 1.

TABLE 10 DIMENSIONS FOR SPIKING HAMMERS

(Clause 5.2)

All dimensions in millimetres.



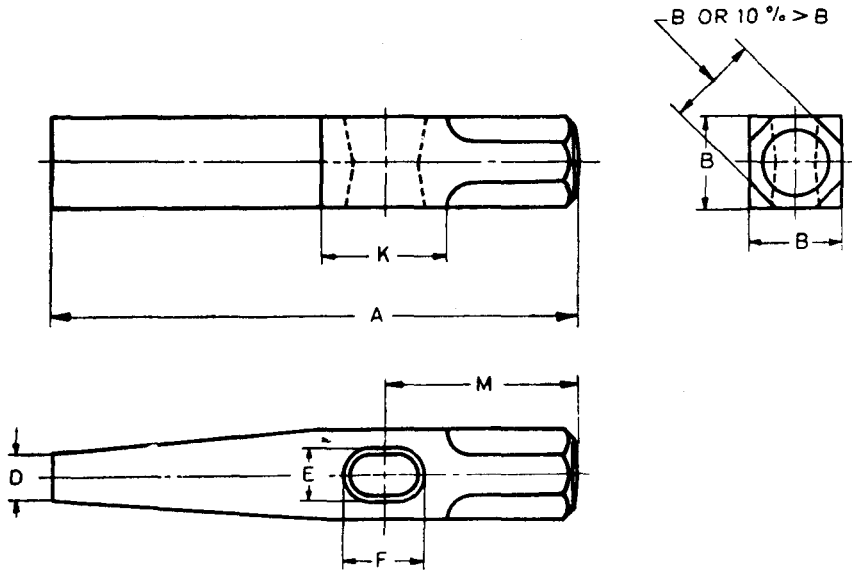
Nominal Mass g (kg)	A	B	D	K	E	F
4 000 (4.0)	290	50	40	65	30	45

Note — For details of eye see Table 1.

TABLE 11 DIMENSIONS FOR KEYING HAMMERS

(Clause 5.2)

All dimensions in millimetres.



Nominal Mass g (kg)	A	B	D	K	M	E	F
2 000 (2'0)	210	40	20	55	75	25	35
3 000 (3'0)	265	45	20	66	95	25	45

Note — For details of eye see Table 1.

14.2 For dimensions, workmanship and finish, hardness and other tests, a single sampling plan with inspection level IV and AQL of 4 percent given in Tables 1 and 2 of IS : 2500 (Part I)-1973 shall be followed.

15. Tests

15.1 Soundness and Assembly Tests — In order to determine satisfactory hardness of striking points and edges, all hammers shall be capable of complying with the requirements of 15.2

15.2 The hammer head shall be fitted with handle conforming to IS : 4953-1973. With the normal grip of the handle, six full sharp consecutive blows shall be struck with the face, pein point or edge on a rigidly supported bar of steel that complies with the material specification as laid down in 3, and that has been normalized.

15.2.1 On satisfactory completion of the test specified in 15.2, further six blows shall be struck varying the angle of delivery to bring as much as possible of the periphery of the striking face or pein into contact with the normalized steel bar.

15.2.2 After each of the tests specified in 15.2 and 15.2.1, the hammer head shall show no flaw or defect. Further the hammer head shall still be firmly fixed to the handle and the handle shall not be damaged.

EXPLANATORY NOTE

This standard was issued in 1957. In order to rationalize the weights and to specify the dimensional and other requirements in metric units, it was first revised in 1968.

In this second revision, the title of the specification has been amended to cover particularly the steel type of hammers. It is proposed to cover other types of hammers like nylon, copper and aluminium hammers separately. The other particulars included in this revision are soundness and assembly tests, depth of hardness and adoption of specific eye shapes in hammer heads.

While preparing this specification considerable assistance has been derived from the following documents :

BS 876 : 1981 Hand hammers. British Standards Institution.

DIN 1193-1982 Steel hammer technical specifications. Deutscher Institut für Normenausschuss.

AMENDMENT NO. 1 JULY 1984

TO

IS:841-1983 SPECIFICATION FOR STEEL HAMMERS

(Second Revision)

Alteration

(Page 2, clause 7.1) - Delete.

Addendum

(Page 3, clause 5.2) - Add the following new clause after 5.2:

'5.3 A tolerance of ± 2.5 mm shall be permissible on the dimensions of eye. Tolerances on other essential dimensions of hammer heads shall be according to the best forging practices.'

Corrigendum

(Page 3, Table 1) - Substitute ' $f = 0.85 F$ (Nominal)' for ' $f = 0.85 E$ (Nominal)'.

(EDC 12)

AMENDMENT NO. 2 JANUARY 1987

TO

IS:841-1983 SPECIFICATION FOR STEEL HAMMERS

(Second Revision)

(Page 1, clause 4.1.1) - Add the following at the end of the clause:

'This requirement is only for the guidance of the manufacturers.'

(Page 10, clause 15.2) - Substitute the following for the existing clause:

'15.2 The hammer heads shall be fitted with handles and struck four times against the cast iron or mild steel block in case of flat faced hammers and block of cast iron in case of pointed hammers. The blocks shall have hardness within the range of 380 to 420 HB. They shall not show any damage or deflection at the end of this test.'

(Page 10, clause 15.2.1) - Substitute the following for the existing clause:

'15.2.1 In addition to the test specified at 15.2, each face and the pein if any, shall be struck with 100g ball pein hammer, having hardness specified at 4, without perceptible indentation of the face or pein of the hammer tested.'

(Page 10, clause 15.2.2) - Delete.

(EDC 12)

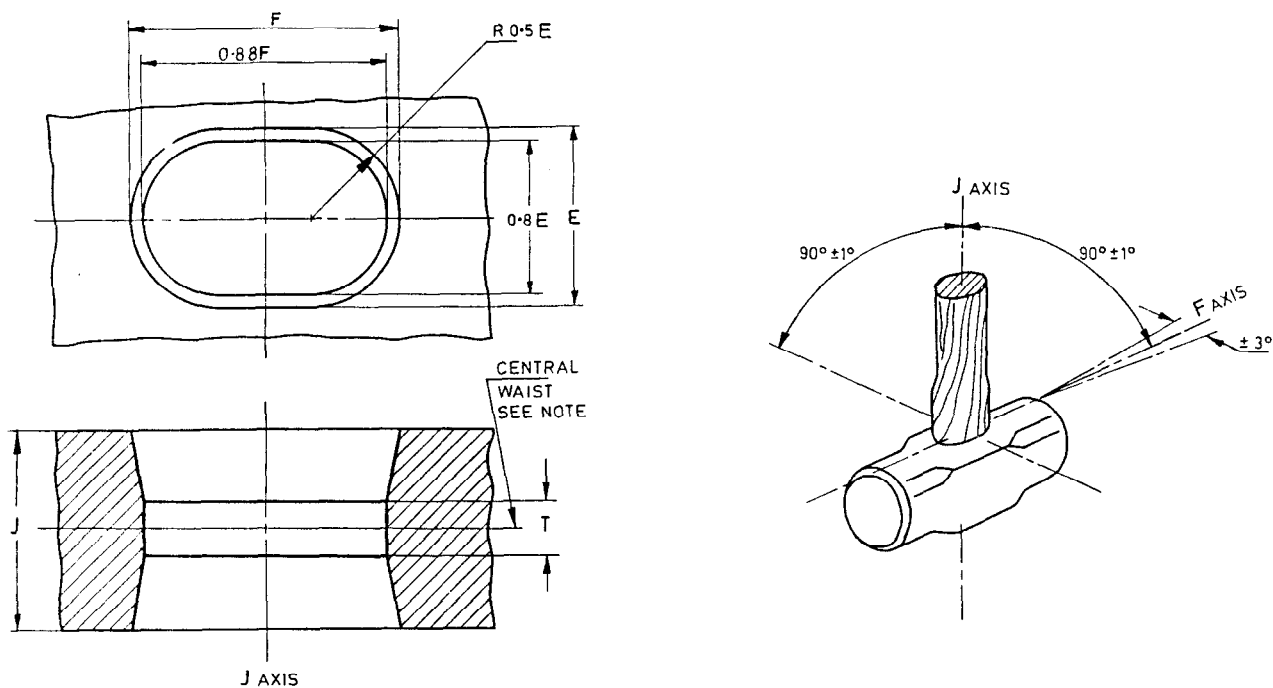
**AMENDMENT NO. 3 NOVEMBER 1999
TO
IS 841 : 1983 SPECIFICATION FOR STEEL HAMMERS**

(*Second Revision*)

(*Page 3, Table 1*) — Substitute the following for the existing:

**TABLE 1 FORM AND PROPORTIONS OF EYE FOR THE FITTING
OF A HANDLE FOR STEEL HAMMERS**
(Clause 5.1)

All dimensions in millimetres.



Note — The depth 'T' of the central waist shall be a minimum of 0.125 J and a maximum of 0.33 J.

Nominal Mass g	E	F
100	10	15
200	15	22.5
300	15	22.5
500	15	22.5
600	20	30
800	20	30
1 000	20	30

Note — The dimensions E and F are applicable for Engineer's ball pein hammers and Engineer's cross pein hammers only.